CHAPTER 5—SOURCES OF FUNDS FOR S&E RESEARCH FACILITIES PROJECTS

HIGHLIGHTS

- Science and engineering facilities construction starts at research-performing institutions totaled $3.1 billion in fiscal years 1996 and 1997. Institutions provided $1.9 billion or 60 percent of these funds from their combined pool of internal sources—private donations, institutional funds, tax-exempt bonds, other debt sources, and other sources; State and local governments provided $967 million or 31 percent of these funds; and the Federal Government provided $271 million or 9 percent of these funds (table 5-1).
- S&E facilities repair/renovation starts for projects costing over $100,000 at research-performing institutions totaled $1.3 billion in fiscal years 1996 and 1997. Institutions provided $866 million or 65 percent of these funds from their combined pool of internal sources; State and local governments provided $338 million or 26 percent of these funds, and the Federal Government provided $121 million or 9 percent of these funds (table 5-4).
- State and local governments were the single largest source of funds for construction and repair/renovation projects at public institutions, while institutions' internal sources were the single largest source of funds for these projects at private institutions (table 5-8).

INTRODUCTION

Research-performing institutions have spent several billion dollars on new science and engineering construction and repair/renovation projects in each biennial period surveyed. This chapter examines how research-performing higher education institutions financed S&E capital projects between 1990 and 1997.

Institutional respondents were asked to report sources of funds for S&E construction and repair/renovation projects costing over $100,000. Possible funding sources included the Federal Government, State or local governments, and such institutional sources as private donations, institutional funds, tax-exempt bonds, debt financing, and other sources. (See Item 5 of the survey in Appendix C.)

Considerable diversity in the source of Federal, State, and local funds for S&E construction and repair/renovation projects is possible. Federal funding, for instance, can include specific facilities support programs administered by the National Institutes of Health (NIH). Federal funding also might include nonpeer-reviewed projects that are specified individually through Congressional legislation rather than specific agency programs. Overlap between the funding categories is possible. For example, indirect costs included as institutional funds can come from Federal, State, and local governments, as well as from industry.

The dollar and relative contributions from the different sources of funds to construction and repair/renovation projects are presented in two ways in the tables. The first section of each table presents the three major sources of funds: Federal Government, State and local governments, and total internal sources. Total internal sources is the sum of all the financial resources an institution can commit to construction and repair/renovation projects—private donations, institutional funds, tax-exempt bonds, other debt financing, and other miscellaneous sources. The second section of each table presents these internal sources separately, with their dollar and relative contributions shown as a proportion of total internal sources.

Because of the support that State governments provide to public higher education, the control of the institution becomes relevant to discussions of the funding of capital projects involving S&E research facilities. Therefore, this chapter distinguishes between public and private institutions: 365 or 55 percent of the research-performing institutions are publicly controlled and 295 or 45 percent of the institutions are privately controlled.

This year, for the first time, institutions were asked to identify the indirect costs recovered from Federal grants and/or contracts that were included in "institutional funds,"

if institutional funds were a source of funds for any S&E research facilities construction or repair/renovation projects costing over $100,000.

FINDINGS

SOURCES OF FUNDS FOR THE CONSTRUCTION OF S&E RESEARCH FACILITIES

Construction starts at research-performing colleges and universities totaled $3.1 billion in fiscal years 1996 and 1997. Construction funds came primarily from institutions' internal sources. All told, institutions provided $1.9 billion or 60 percent of all funds used in new construction (table 5-1a). The majority of these funds (93 percent) came from three internal sources: private donations ($597 million), institutional funds ($593 million), and tax-exempt bonds ($553 million) (table 5-1b).

The amount of funds committed to new construction projects in 1996 and 1997 ($3.1 billion) is substantially lower than the amount committed in 1990 and 1991 ($3.5 billion). Between 1990–91 and the current survey, the dollar and relative contributions changed as follows:

- The dollar contribution from the Federal Government decreased by $295 million (from $566 million to $271 million), and its relative contribution decreased from 16 to 9 percent of all construction funds;
- The dollar contribution from State and local governments decreased by $169 million (from $1,136 million to $967 million), while their relative contribution did not change; and
- The dollar contribution from internal sources did not change substantially; however, the relative contribution increased from 52 to 60 percent of all construction funds.

Table 5-1. Trends in the sources of funds for construction of science and engineering research facilities: 1990–97

5-1a. All sources

All institutions	All sources	Federal	State/ local	Internal sources
	Dollar contribution			
	In millions of constant 1997 dollars			
Fiscal years				
1990–91	3,535	566	1,136	1,833
1992–93	3,207	524	1,105	1,579
1994–95	2,920	218	1,246	1,456
1996–97	3,110	271	967	1,873
	Relative contribution			
	Percentage			
Fiscal years				
1990–91	100	16	32	52
1992–93	100	16	34	49
1994–95	100	7	43	50
1996–97	100	9	31	60

5-1b. Internal sources

All institutions	Total internal sources	Private donations	Institutional funds	Tax-exempt bonds	Other debt	Other sources
	Dollar contribution					
	In millions of constant 1997 dollars					
Fiscal years						
1990–91	1,833	419	468	864	42	39
1992–93	1,579	343	427	707	44	57
1994–95	1,456	380	466	450	154	7
1996–97	1,873	597	593	553	107	23
	Relative contribution					
	Percentage					
Fiscal years						
1990–91	100	23	26	47	2	2
1992–93	100	22	27	45	3	4
1994–95	100	26	32	31	11	0
1996–97	100	32	32	30	6	1

NOTE: Components may not add to totals due to rounding. Percentages are based on unrounded data that do not appear in the table. Current dollars have been adjusted to constant 1997 dollars using the Bureau of the Census' Composite Fixed-Weighted Price Index for Construction.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

The dollar contributions in four of the five individual internal sources of funds changed as well:

- Private donations increased by $178 million (from $419 million to $597 million);
- Institutional funds increased by $125 million (from $468 million to $593 million);
- Tax-exempt bonds decreased by $311 million (from $864 million to $553 million); and
- Other debt sources increased by $65 million (from $42 million to $107 million).

Changes in the relative contribution from each internal source mirrored the changes in the dollar contributions described previously.

Between the last survey period (1994–95) and the current one, there were no substantial changes in the dollar or relative contributions from the Federal Government for new construction projects. However, funds from State and local governments declined by $279 million (from $1,246 million to $967 million), while their relative contribution declined from 43 to 31 percent of all construction funds. Funds from internal sources increased by $417 million (from $1,456 million to $1,873 million), while their relative contribution increased from 50 to 60 percent of all construction funds. This growth stemmed primarily from changes in three internal sources:

- The dollar contribution from private donations increased by $217 million (from $380 million to $597 million);
- The dollar contribution from institutional funds increased by $127 million (from $466 million to $593 million); and
- The dollar contribution from other debt sources decreased by $47 million (from $154 million to $107 million).

Sources of Funds for the Construction of S&E Research Facilities at Public Institutions

Public, research-performing institutions committed a total of $2 billion from all sources to the construction of new S&E research facilities in 1996 and 1997. State and local governments were the largest source of these funds ($940 million or 47 percent of total funds). The second largest source of funds came from institutions' internal sources ($847 million or 43 percent of total public construction funds) (table 5-2). The majority of these funds (92 percent) came from three sources: private donations ($267 million), tax-exempt bonds ($260 million), and institutional funds ($249 million) (table 5-2).

Between 1990 and 1991 and the current survey period, the amount of funds public institutions committed to new construction projects declined by $411 million (from $2.4 billion to $2.0 billion in constant dollars). While the dollar contribution from State and local governments did not change substantially during this time period, the dollar contribution from the Federal Government declined by $260 million (from $461 million to $201 million). At the same time, the Federal Government's relative contribution declined from 19 to 10 percent of all new construction funds. In addition, the relative contribution by State and local governments increased from 40 to 47 percent of all construction funds.

Although the total amount of funds committed to new construction projects at public institutions did not change between the last survey period (1994–95) and the current one, the contributions from all three sources did:

- The Federal Government's dollar contribution increased by $79 million (from $122 million to $201 million), while its relative contribution increased from 6 to 10 percent of all construction funds;
- State and local governments' dollar contribution decreased by $289 million (from $1,229 million to $940 million), while their relative contribution decreased from 62 to 47 percent of all construction funds; and
- Funds from internal sources increased by $222 million (from $625 million to $847 million), while their relative contribution increased from 32 to 43 percent of all construction funds.

In the current survey period, the different types of public, research-performing institutions funded the construction of new S&E research facilities from the different sources as follows:

- The public, top 100 institutions committed a total of $1,344 million to the construction of new S&E research facilities. Ten percent of these funds ($129 million) came from the Federal Government, 49 percent ($654 million) came from State and local governments, and 42 percent ($561 million) came from internal sources;

Table 5-2. Trends in the sources of funds for the construction of science and engineering research facilities at public institutions by institution type: 1990–97

5-2a. All sources

Public institutions	All sources	Federal	State/ local	Internal sources
	Dollar contribution			
	In millions of constant 1997 dollars			
Total				
1990–91	2,400	461	962	977
1992–93	2,300	372	1,060	868
1994–95	1,975	122	1,229	625
1996–97	1,989	201	940	847
Top 100 in research expenditures				
1990–91	1,604	182	680	741
1992–93	1,651	246	645	760
1994–95	1,299	114	647	539
1996–97	1,344	129	654	561
Other doctorate-granting				
1990–91	661	272	271	118
1992–93	549	119	329	101
1994–95	366	5	275	85
1996–97	468	69	209	190
Nondoctorate-granting				
1990–91	135	7	10	118
1992–93	99	7	86	6
1994–95	310	3	306	1
1996–97	176	3	77	96
	Relative contribution			
	Percentage			
Total				
1990–91	100	19	40	41
1992–93	100	16	46	38
1994–95	100	6	62	32
1996–97	100	10	47	43
Top 100 in research expenditures				
1990–91	100	11	42	46
1992–93	100	15	39	46
1994–95	100	9	50	41
1996–97	100	10	49	42
Other doctorate-granting				
1990–91	100	41	41	18
1992–93	100	22	60	18
1994–95	100	1	75	23
1996–97	100	15	45	40
Nondoctorate-granting				
1990–91	100	5	8	87
1992–93	100	7	87	6
1994–95	100	1	99	0
1996–97	100	1	44	55

5-2b. Internal sources

Public institutions	Total internal sources	Private donations	Institutional funds	Tax-exempt bonds	Other debt	Other sources
	Dollar contribution					
	In millions of constant 1997 dollars					
Total						
1990–91	977	165	321	473	9	8
1992–93	868	174	226	445	18	4
1994–95	625	131	150	323	14	7
1996–97	847	267	249	260	54	17
Top 100 in research expenditures						
1990–91	741	143	251	330	9	8
1992–93	760	144	169	428	18	2
1994–95	539	92	138	288	14	7
1996–97	561	190	213	136	21	1
Other doctorate-granting						
1990–91	118	22	70	26	0	0
1992–93	101	30	57	14	0	0
1994–95	85	39	11	35	0	0
1996–97	190	72	37	67	0	15
Nondoctorate-granting						
1990–91	118	0	0	118	0	0
1992–93	6	0	0	4	0	2
1994–95	1	0	1	0	0	0
1996–97	96	5	0	57	33	1
	Relative contribution					
	Percentage					
Total						
1990–91	100	17	33	48	1	1
1992–93	100	20	26	51	2	0
1994–95	100	21	24	52	2	1
1996–97	100	32	29	31	6	2
Top 100 in research expenditures						
1990–91	100	19	34	45	1	1
1992–93	100	19	22	56	2	0
1994–95	100	17	26	53	3	1
1996–97	100	34	38	24	4	0
Other doctorate-granting						
1990–91	100	19	59	22	0	0
1992–93	100	30	57	13	0	0
1994–95	100	46	13	41	0	0
1996–97	100	38	19	35	0	8
Nondoctorate-granting						
1990–91	100	0	0	100	0	0
1992–93	100	0	4	67	0	30
1994–95	100	0	100	0	0	0
1996–97	100	5	0	59	35	1

NOTE: Components may not add to totals due to rounding. Percentages are based on unrounded data that do not appear in the table. Current dollars have been adjusted to constant 1997 dollars using the Bureau of the Census' Composite Fixed-Weighted Price Index for Construction.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

- The public, other doctorate-granting institutions committed a total of $468 million to new construction. Fifteen percent of these funds ($69 million) came from the Federal Government, 45 percent ($209 million) came from State and local governments, and 40 percent ($190) came from internal sources; and

- The public, nondoctorate-granting institutions committed a total of $176 million to new construction. One percent of these funds ($3 million) came from the Federal Government, 44 percent ($77 million) came from State and local governments, and 55 percent ($96 million) came from internal sources.

Sources of Funds for the Construction of S&E Research Facilities at Private Institutions

Private, research-performing institutions committed a total of $1.1 billion to the construction of new S&E research facilities in 1996 and 1997. Unlike public colleges and universities, which relied most heavily on funds from State and local governments (table 5-2), private institutions derived most of their construction funds from internal sources ($1.0 billion or 91 percent of total private construction funds) (table 5-3a). The majority of these funds (94 percent) came from three sources: institutional funds ($344 million), private donations ($329 million), and tax-exempt bonds ($293 million) (table 5-3b). Funds from State and local governments accounted for only 2 percent ($26 million) of all S&E construction funds committed by private institutions.

There were few substantial changes in the amount of funds in constant dollars that private, research-performing institutions committed to new S&E construction projects between the current survey period and all prior ones. However, the relative contribution from State and local governments and from internal sources changed between 1990 and 1991 and the current survey period as did the dollar contribution from State and local governments:

- State and local governments' dollar contribution decreased by $149 million (from $175 million to $26 million), while their relative contribution decreased from 15 to 2 percent of all construction funds; and

- Institutions' relative contribution from internal sources increased from 75 to 91 percent of all construction funds.

In the current survey period, the different types of private, research-performing institutions committed funds to the construction of new S&E research facilities as follows:

- The private, top 100 institutions committed a total of $710 million to the construction of new S&E research facilities. Five percent of these funds ($32 million) came from the Federal Government, 1 percent ($10 million) came from State and local governments, and 94 percent ($668 million) came from internal sources;

- The private, other doctorate-granting institutions committed a total of $321 million to new construction. Twelve percent of these funds ($38 million) came from the Federal Government, 2 percent ($8 million) came from State and local governments, and 86 percent ($276 million) came from internal sources; and

- The private, nondoctorate-granting institutions committed a total of $91 million to new construction. They received no construction funds from the Federal Government, while 10 percent ($9 million) of their construction funds came from State and local governments, and 90 percent ($82 million) came from internal sources.

Sources of Funds for the Repair/Renovation of S&E Research Facilities

Repair/renovation starts for projects costing over $100,000 at research-performing colleges and universities totaled $1.3 billion in fiscal years 1996 and 1997. The main source of repair/renovation funds came from the combined pool of internal sources. Institutions provided $866 million or 65 percent of all funds used in new repair/renovation projects (table 5-4a). The majority of these funds (83 percent) came from two internal sources: institutional funds ($579 million) and private donations ($141 million) (table 5-4b).

Between 1990–91 and the current survey period, the amount of funds that research-performing institutions committed to new repair/renovation projects increased

Table 5-3. Trends in the sources of funds for the construction of science and engineering research facilities at private institutions by institution type: 1990–97

5-3a. All sources

Private institutions	All sources	Federal	State/ local	Internal sources
	Dollar contribution			
	In millions of constant 1997 dollars			
Total				
1990–91	1,136	105	175	856
1992–93	907	152	44	711
1994–95	944	96	17	831
1996–97	1,122	70	26	1,025
Top 100 in research expenditures				
1990–91	798	47	174	577
1992–93	663	4	39	619
1994–95	818	93	10	716
1996–97	710	32	10	668
Other doctorate-granting				
1990–91	321	52	1	267
1992–93	238	147	5	86
1994–95	88	1	8	79
1996–97	321	38	8	276
Nondoctorate-granting				
1990–91	17	6	0	11
1992–93	7	1	0	5
1994–95	38	2	0	36
1996–97	91	0	9	82
	Relative contribution			
	Percentage			
Total				
1990–91	100	9	15	75
1992–93	100	17	5	78
1994–95	100	10	2	88
1996–97	100	6	2	91
Top 100 in research expenditures				
1990–91	100	6	22	72
1992–93	100	1	6	93
1994–95	100	11	1	87
1996–97	100	5	1	94
Other doctorate-granting				
1990–91	100	16	0	83
1992–93	100	62	2	36
1994–95	100	1	9	90
1996–97	100	12	2	86
Nondoctorate-granting				
1990–91	100	34	0	66
1992–93	100	22	0	78
1994–95	100	6	0	94
1996–97	100	0	10	90

5-3b. Internal sources

Private institutions	Total internal sources	Private donations	Institutional funds	Tax-exempt bonds	Other debt	Other sources
	Dollar contribution					
	In millions of constant 1997 dollars					
Total						
1990–91	856	254	147	391	33	31
1992–93	711	169	201	262	26	53
1994–95	831	249	316	127	139	0
1996–97	1,025	329	344	293	52	7
Top 100 in research expenditures						
1990–91	577	230	59	224	33	31
1992–93	619	144	182	215	26	53
1994–95	716	163	306	111	136	0
1996–97	668	177	337	103	45	7
Other doctorate-granting						
1990–91	267	18	84	166	0	0
1992–93	86	21	18	47	0	0
1994–95	79	70	6	0	4	0
1996–97	276	79	7	182	8	0
Nondoctorate-granting						
1990–91	11	5	4	2	0	0
1992–93	5	4	0	0	0	0
1994–95	36	17	4	15	0	0
1996–97	82	74	0	8	0	0
	Relative contribution					
	Percentage					
Total						
1990–91	100	30	17	46	4	4
1992–93	100	24	28	37	4	7
1994–95	100	30	38	15	17	0
1996–97	100	32	34	29	5	1
Top 100 in research expenditures						
1990–91	100	40	10	39	6	5
1992–93	100	23	29	35	4	9
1994–95	100	23	43	16	19	0
1996–97	100	26	50	15	7	1
Other doctorate-granting						
1990–91	100	7	31	62	0	0
1992–93	100	24	21	54	0	0
1994–95	100	88	8	0	5	0
1996–97	100	29	2	66	3	0
Nondoctorate-granting						
1990–91	100	48	39	13	0	0
1992–93	100	87	7	7	0	0
1994–95	100	47	11	43	0	0
1996–97	100	90	0	10	0	0

NOTE: Components may not add to totals due to rounding. Percentages are based on unrounded data that do not appear in the table. Current dollars have been adjusted to constant 1997 dollars using the Bureau of the Census' Composite Fixed-Weighted Price Index for Construction.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table 5-4. Trends in the sources of funds for the repair/renovation of science and engineering research facilities: 1990–97

5-4a. All sources

All institutions	Dollar contribution				Relative contribution			
	All sources	Federal	State/ local	Internal sources	All sources	Federal	State/ local	Internal sources
	In millions of constant 1997 dollars				Percentage			
Fiscal years								
1990–91	981	58	289	634	100	6	29	65
1992–93	952	64	288	600	100	7	30	63
1994–95	1,116	117	280	719	100	10	25	64
1996–97	1,325	121	338	866	100	9	26	65

5-4b. Internal sources

All institutions	Dollar contribution						Relative contribution					
	Total internal sources	Private donations	Institu- tional funds	Tax- exempt bonds	Other debt	Other sources	Total internal sources	Private donations	Institu- tional funds	Tax- exempt bonds	Other debt	Other sources
	In millions of constant 1997 dollars						Percentage					
Fiscal years												
1990–91	634	119	422	79	10	4	100	19	67	12	1	1
1992–93	600	83	377	91	31	18	100	14	63	15	5	3
1994–95	719	117	456	53	83	10	100	16	63	7	12	1
1996–97	866	141	579	85	36	26	100	16	67	10	4	3

NOTE: Components may not add to totals due to rounding. Percentages are based on unrounded data that do not appear in the table. Current dollars have been adjusted to constant 1997 dollars using the Bureau of the Census' Composite Fixed-Weighted Price Index for Construction. As used here, repair/renovation projects are limited to those with prorated costs of more than $100,000 for affected research space.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

by $344 million (from $981 million to $1,325 million). During this time period, the dollar and relative contributions from State and local governments did not change, while the contributions from the Federal Government and from internal sources changed as follows:

- The Federal Government's dollar contribution increased by $63 million (from $58 million to $121 million), while its relative contribution increased from 6 to 9 percent of all repair/ renovation funds; and
- Institutions' dollar contribution from internal sources increased by $232 million (from $634 million to $866 million), while the relative contribution remained constant at 65 percent.

Changes also occurred between the first survey period and the current one in institutions' contribution of funds to S&E facilities repair/renovation projects from two internal sources:

- The dollar contribution from institutional funds increased by $157 million (from $422 million to $579 million), while the relative contribution remained constant at 67 percent; and
- The dollar contribution from other debt sources increased by $26 million (from $10 million to $36 million), while the relative contribution increased from 1 to 4 percent of all institutional sources.

Between the last survey period (1994–95) and the current one, the amount of funds research-performing institutions committed to new repair/renovation projects increased by $209 million (from $1,116 million to $1,325 million). Funds from internal sources increased by $147 million (from $719 million to $866 million), while the Federal Government's and State and local governments' dollar contributions did not change substantially.

Three internal sources showed substantial changes in their dollar contributions between 1994–95 and the current survey period:

- The dollar contribution from institutional funds increased by $123 million (from $456 million to $579 million);
- The dollar contribution from tax-exempt bonds increased by $32 million (from $53 million to $85 million); and
- The dollar contribution from other debt sources decreased by $47 million (from $83 million to $36 million).

Despite these changes, other debt sources was the only internal source whose relative contribution changed substantially. Its relative contribution declined from 12 to 4 percent of all institutional repair/renovation funds.

In both time periods, internal sources accounted for almost two thirds of all repair/renovation funds, the contribution from State and local governments accounted for approximately a quarter of all funds, and the contribution from the Federal Government remained near 10 percent.

Sources of Funds for the Repair/Renovation of S&E Research Facilities at Public Institutions

Public, research-performing institutions committed $670 million to S&E repair/renovation projects costing over $100,000 in 1996 and 1997. State and local governments were the largest source of these funds ($328 million or 49 percent). Internal sources ranked second ($269 million or 40 percent of total funds) (table 5-5a). Two thirds of these funds (67 percent) came from institutional funds ($180 million) (table 5-5b).

Between 1990–91 and the current survey period, the amount of funds public institutions committed to new repair/renovation projects increased by $136 million (from $534 million to $670 million). Funds from the Federal Government and internal sources changed substantially between these time periods:

- The Federal Government's dollar contribution increased by $43 million (from $29 million to $72 million); and
- Institutions' dollar contribution from internal sources increased by $42 million (from $227 million to $269 million).

Similar changes occurred between the last survey period (1994–95) and the current one. The total amount of funds public institutions committed to new repair/renovation projects increased by $147 million (from $523 million to $670 million). Funds from the Federal Government and internal sources increased by $31 million and $55 million, respectively, but there were no changes in their relative contributions.

In the current survey period, different types of public, research-performing institutions funded S&E facilities repair/renovation projects as follows:

- The public, top 100 institutions committed a total of $404 million to new S&E repair/renovation projects. Seven percent of these funds ($29 million) came from the Federal Government, 45 percent ($180 million) came from State and local governments, and 48 percent ($195 million) came from internal sources;
- The public, other doctorate-granting institutions committed a total of $177 million to new S&E repair/renovation projects. Seventeen percent of these funds ($29 million) came from the Federal Government, 47 percent ($83 million) came from State and local governments, and 36 percent ($64 million) came from internal sources; and
- The public, nondoctorate-granting institutions committed a total of $89 million to new S&E repair/renovation projects. Sixteen percent of these funds ($14 million) came from the Federal Government, 73 percent ($65 million) came from State and local governments, and 11 percent ($10 million) came from internal sources.

Sources of Funds for the Repair/Renovation of S&E Research Facilities at Private Institutions

Private, research-performing institutions committed a total of $655 million to S&E repair/renovation projects costing over $100,000 in 1996 and 1997. Unlike public colleges and universities, which relied most heavily on funds from State and local governments, private institutions derived most of their repair/renovation funds from

Table 5-5. Trends in the sources of funds for the repair/renovation of science and engineering research facilities at public institutions by institution type: 1990–97

5-5a. All sources

Public institutions	All sources	Federal	State/ local	Internal sources
	Dollar contribution			
	In millions of constant 1997 dollars			
Total				
1990–91	534	29	278	227
1992–93	593	39	270	284
1994–95	523	41	268	214
1996–97	670	72	328	269
Top 100 in research expenditures				
1990–91	390	15	171	204
1992–93	453	14	184	255
1994–95	368	25	188	155
1996–97	404	29	180	195
Other doctorate-granting				
1990–91	122	13	88	21
1992–93	126	21	77	28
1994–95	107	9	47	51
1996–97	177	29	83	64
Nondoctorate-granting				
1990–91	21	1	19	2
1992–93	14	4	10	1
1994–95	48	7	34	7
1996–97	89	14	65	10
	Relative contribution			
	Percentage			
Total				
1990–91	100	5	52	43
1992–93	100	7	46	48
1994–95	100	8	51	41
1996–97	100	11	49	40
Top 100 in research expenditures				
1990–91	100	4	44	52
1992–93	100	3	41	56
1994–95	100	7	51	42
1996–97	100	7	45	48
Other doctorate-granting				
1990–91	100	11	72	17
1992–93	100	17	61	22
1994–95	100	8	44	48
1996–97	100	17	47	36
Nondoctorate-granting				
1990–91	100	4	88	8
1992–93	100	26	69	5
1994–95	100	15	70	15
1996–97	100	16	73	11

5-5b. Internal sources

Public institutions	Total internal sources	Private donations	Institutional funds	Tax-exempt bonds	Other debt	Other sources
	Dollar contribution					
	In millions of constant 1997 dollars					
Total						
1990–91	227	52	160	14	0	1
1992–93	284	28	176	64	2	14
1994–95	214	17	170	19	1	7
1996–97	269	38	180	25	0	26
Top 100 in research expenditures						
1990–91	204	52	139	13	0	1
1992–93	255	28	152	59	2	13
1994–95	155	7	127	15	1	6
1996–97	195	34	133	12	0	15
Other doctorate-granting						
1990–91	21	0	19	2	0	0
1992–93	28	0	23	4	0	0
1994–95	51	10	36	4	0	1
1996–97	64	3	42	9	0	10
Nondoctorate-granting						
1990–91	2	0	2	0	0	0
1992–93	1	0	1	0	0	0
1994–95	7	0	7	0	0	0
1996–97	10	2	4	5	0	0
	Relative contribution					
	Percentage					
Total						
1990–91	100	23	70	6	0	0
1992–93	100	10	62	22	1	5
1994–95	100	8	79	9	0	3
1996–97	100	14	67	9	0	10
Top 100 in research expenditures						
1990–91	100	25	68	6	0	0
1992–93	100	11	60	23	1	5
1994–95	100	4	82	10	1	4
1996–97	100	17	69	6	0	8
Other doctorate-granting						
1990–91	100	0	92	8	0	0
1992–93	100	1	83	15	0	0
1994–95	100	19	71	8	0	2
1996–97	100	4	66	14	0	16
Nondoctorate-granting						
1990–91	100	0	100	0	0	0
1992–93	100	0	100	0	0	0
1994–95	100	3	97	0	0	0
1996–97	100	15	40	45	0	0

NOTE: Components may not add to totals due to rounding. Percentages are based on unrounded data that do not appear in the table. Current dollars have been adjusted to constant 1997 dollars using the Bureau of the Census' Composite Fixed-Weighted Price Index for Construction. As used here, repair/renovation projects are limited to those with prorated costs of more than $100,000 for affected research space.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

internal sources ($597 million or 91 percent of total repair/renovation funds) (table 5-6a). The majority of these funds (84 percent) came from two sources: institutional funds ($399 million) and private donations ($102 million) (table 5-6b). Funds from State and local governments account for only 1 percent ($10 million) of all S&E repair/renovation funds committed by private institutions.

The amount of funds private, research-performing institutions committed to new S&E repair/renovation projects between 1990 and 1991 and the current survey period increased by $208 million (from $447 million to $655 million). In addition, changes occurred in the contributions from the different funding sources:

- The Federal Government's dollar contribution increased by $19 million (from $29 million to $48 million), while its relative contribution did not change substantially;
- State and local governments' dollar contribution did not change substantially, but their relative contribution decreased from 3 to 1 percent of all repair/renovation funds; and
- Institutions' dollar contribution from internal sources increased by $190 million (from $407 million to $597 million), while their relative contribution remained constant at 91 percent.

Between the last survey period (1994–95) and the current one, the mix of funds committed to S&E repair/renovation projects changed as follows:

- The Federal Government's dollar contribution decreased by $28 million (from $76 million to $48 million), while its relative contribution decreased from 13 to 7 percent of all repair/renovation funds;
- State and local governments' dollar contribution decreased by $2 million (from $12 million to $10 million), while their relative contribution did not change substantially; and
- Institutions' dollar contribution from internal sources did not change substantially, while their relative contribution increased from 85 to 91 percent of all repair/renovation funds.

In the current survey period, different types of private, research-performing institutions funded new S&E facilities repair/renovation projects as follows:

- The private, top 100 institutions committed a total of $453 million to new S&E repair/renovation projects. Five percent of these funds ($23 million) came from the Federal Government, 2 percent ($8 million) came from State and local governments, and 93 percent ($422 million) came from internal sources;
- The private, other doctorate-granting institutions committed a total of $108 million to new S&E repair/renovation projects. Fourteen percent of these funds ($15 million) came from the Federal Government, 1 percent ($2 million) came from State and local governments, and 84 percent ($92 million) came from internal sources; and
- The private, nondoctorate-granting institutions committed a total of $93 million to new S&E repair/renovation projects. Eleven percent of these funds ($11 million) came from the Federal Government, no funds came from State and local governments, and 89 percent of funds ($83 million) came from internal sources.

Amount of Indirect Costs Recovered from Federal Grants Committed to Construction and Repair/Renovation Projects

The institutions in the sample were asked if they could identify the amount of indirect costs they recovered from Federal grants and/or contracts included in institutional funds for projects costing over $100,000. Of the 236 institutions that used institutional funds for construction and/or repair/renovation projects, 69 institutions reported they could identify the amount of Federal indirect costs they recovered. The following discussion is limited to these 69 institutions.

Overall, these institutions used more than twice as many Federal funds recovered from indirect costs to fund repair/renovation projects ($19 million) than they did to fund construction projects ($9 million). These sums represent 3.3 percent of institutional funds allocated to repair/renovation and 1.5 percent of institutional funds allocated to construction (table 5-7).

Table 5-6. Trends in the sources of funds for the repair/renovation of science and engineering research facilities at private institutions by institution type: 1990–97

5-6a. All sources

Private institutions	All sources	Federal	State/ local	Internal sources
	Dollar contribution			
	In millions of constant 1997 dollars			
Total				
1990–91	447	29	11	407
1992–93	359	25	17	317
1994–95	593	76	12	506
1996–97	655	48	10	597
Top 100 in research expenditures				
1990–91	362	23	11	328
1992–93	257	13	9	235
1994–95	429	31	11	386
1996–97	453	23	8	422
Other doctorate-granting				
1990–91	69	6	0	63
1992–93	79	5	8	65
1994–95	132	43	0	89
1996–97	108	15	2	92
Nondoctorate-granting				
1990–91	16	0	0	16
1992–93	23	7	0	16
1994–95	33	2	1	30
1996–97	93	11	0	83
	Relative contribution			
	Percentage			
Total				
1990–91	100	6	3	91
1992–93	100	7	5	88
1994–95	100	13	2	85
1996–97	100	7	1	91
Top 100 in research expenditures				
1990–91	100	6	3	91
1992–93	100	5	3	92
1994–95	100	7	3	90
1996–97	100	5	2	93
Other doctorate-granting				
1990–91	100	9	0	91
1992–93	100	7	11	83
1994–95	100	32	0	67
1996–97	100	14	1	84
Nondoctorate-granting				
1990–91	100	0	0	100
1992–93	100	29	0	71
1994–95	100	5	2	93
1996–97	100	11	0	89

5-6b. Internal sources

Private institutions	Total internal sources	Private donations	Institutional funds	Tax-exempt bonds	Other debt	Other sources
	Dollar contribution					
	In millions of constant 1997 dollars					
Total						
1990–91	407	67	262	65	10	3
1992–93	317	54	201	28	29	5
1994–95	506	100	287	34	82	3
1996–97	597	102	399	59	35	0
Top 100 in research expenditures						
1990–91	328	56	202	58	10	2
1992–93	235	42	138	22	29	5
1994–95	386	74	220	25	67	1
1996–97	422	44	318	27	33	0
Other doctorate-granting						
1990–91	63	8	52	3	0	1
1992–93	65	5	56	4	0	0
1994–95	89	8	64	2	13	2
1996–97	92	6	75	9	2	0
Nondoctorate-granting						
1990–91	16	4	9	4	0	0
1992–93	16	8	7	2	0	0
1994–95	30	18	3	7	3	0
1996–97	83	52	7	24	0	0
	Relative contribution					
	Percentage					
Total						
1990–91	100	17	64	16	2	1
1992–93	100	17	63	9	9	2
1994–95	100	20	57	7	16	1
1996–97	100	17	67	10	6	0
Top 100 in research expenditures						
1990–91	100	17	62	18	3	1
1992–93	100	18	59	9	12	2
1994–95	100	19	57	6	17	0
1996–97	100	10	75	6	8	0
Other doctorate-granting						
1990–91	100	12	82	4	0	1
1992–93	100	8	86	6	0	0
1994–95	100	9	72	2	14	2
1996–97	100	6	81	9	2	0
Nondoctorate-granting						
1990–91	100	23	53	24	0	0
1992–93	100	48	41	11	0	0
1994–95	100	58	10	23	8	0
1996–97	100	63	8	29	0	0

NOTE: Components may not add to totals due to rounding. Percentages are based on unrounded data that do not appear in the table. Current dollars have been adjusted to constant 1997 dollars using the Bureau of the Census' Composite Fixed-Weighted Price Index for Construction. As used here, repair/renovation projects are limited to those with prorated costs of more than $100,000 for affected research space.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Doctorate-granting institutions were the only institutions to use Federal funds recovered from indirect costs for construction. The top 100 institutions used $3 million, which accounted for 0.6 percent of the institutional funds they allocated to construction. Other doctorate-granting institutions used $6 million in Federal funds recovered from indirect costs for construction, which accounted for 14.0 percent of the institutional funds they allocated to construction.

All three types of institutions used Federal funds recovered from indirect costs for repair/renovation projects. The top 100 institutions used $9 million, which accounted for 2.0 percent of the institutional funds they allocated to repair/renovation projects, while the nondoctorate-granting institutions used $1 million, or 9.1 percent of their institutional funds allocated to repair/renovation projects. Other doctorate-granting institutions used $10 million in Federal funds recovered from indirect costs, which accounted for 8.5 percent of the institutional funds they allocated to repair/renovation projects costing over $100,000.

Summary of Major Sources of Funds

Table 5-8 summarizes the major sources of funds for S&E construction and repair/renovation projects by institution type and sector. Both types of public, doctorate-granting institutions received the largest portion of their S&E construction and repair/renovation funds from State and local governments. Public, nondoctorate-granting institutions also received a large portion of their S&E repair/renovation funds from State and local governments, but the major source of their construction funds came from internal sources (55 percent). The single largest source of these funds (59 percent) came from tax-exempt bonds.

By contrast, all types of private institutions derived over 80 percent of both their S&E construction and S&E repair/renovation funds from internal sources. Overall, institutional funds were the largest single source of these funds for construction (34 percent of all internal sources) and for repair/renovation (67 percent of all internal sources). However, the largest internal source of funds varied by institution type:

- Among top 100 institutions, institutional funds were the largest internal source of construction funds (50 percent of all internal sources) and repair/renovation funds (75 percent of all internal sources);
- Among other doctorate-granting institutions, tax-exempt bonds were the largest internal source of construction funds (66 percent of all internal sources), while institutional funds were the largest internal source of repair/renovation funds (81 percent of all internal sources); and
- Among nondoctorate-granting institutions, private donations were the largest internal source of construction funds (90 percent of all internal sources) and repair/renovation funds (63 percent of all internal sources).

Table 5-7. Indirect costs recovered from Federal grants and/or contracts included in institutional funds for science and engineering construction and repair/renovation: 1996–97

Institution type	Construction			Repair/Renovation		
	Indirect costs	Total institutional funds	Indirect costs as percent of institutional funds	Indirect costs	Total institutional funds	Indirect costs as percent of institutional funds
	In millions of dollars					
Total						
Doctorate-granting	9	593	1.5	19	568	3.3
Top 100 in research expenditures	3	549	0.6	9	451	2.0
Other	6	43	14.0	10	117	8.5
Nondoctorate-granting	0	0	0.0	1	11	9.1

NOTE: Components may not add to totals due to rounding. Percentages are based on unrounded data, which do not appear in the table.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.

Table 5-8. Major sources of funds for construction and repair/renovation of science and engineering research facilities at public and private institutions: 1996–97

Public institutions	Construction			Repair/renovation		
	Major source	Dollars in millions	Percent of total funds	Major source	Dollars in millions	Percent of total funds
Total	State/local governments	940	47	State/local governments	328	49
Top 100 in research expenditures	State/local governments	653	49	State/local governments	180	45
Other doctorate-granting	State/local governments	209	45	State/local governments	83	47
Nondoctorate-granting	Internal sources	96	55	State/local governments	65	73
	(Tax-exempt bonds)	(57)	(59)			
Private institutions	**Major source**	**Dollars in millions**	**Percent of total funds**	**Major source**	**Dollars in millions**	**Percent of total funds**
Total	Internal sources	1,025	91	Internal sources	597	91
	(Institutional funds)	(344)	(34)	(Institutional funds)	(399)	(67)
Top 100 in research expenditures	Internal sources	668	94	Internal sources	422	93
	(Institutional funds)	(337)	(50)	(Institutional funds)	(318)	(75)
Other doctorate-granting	Internal sources	276	86	Internal sources	92	84
	(Tax-exempt bonds)	(182)	(66)	(Institutional funds)	(75)	(81)
Nondoctorate-granting	Internal sources	82	90	Internal sources	83	89
	(Private donations)	(74)	(90)	(Private donations)	(52)	(63)

NOTE: Sources and figures in parentheses are subsets of the preceding source.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1998 Survey of Scientific and Engineering Research Facilities at Colleges and Universities.